

REMARKS

Reconsideration of this application is respectfully requested.

In the Office Action, claims 1-3, 5-7, 9-14, 16-18, and 20-27 were pending and rejected. In this response, claims 1-2, 10-11, 12-13, and 21-26 have been amended. Claim 30 depending from claim 3 and claims 31-32 depending from claim 9 have been added. No new subject matter has been added.

Response to Rejection under 35 U.S.C. § 101

Claims 12-18 and 20-22 are rejected under 35 U.S.C. § 101. Paragraph [0040] in the Specification has been amended to present the scope of a machine-readable storage medium. The Applicants submit that the claim 12 and its dependent claims 13-18 and 20-22 are directed to the statutory matters as required by 35 U.S.C. § 101. The Applicants respectfully request the rejections towards the claims to be withdrawn. No new matter has been added.

Rejections under 35 U.S.C. § 103

Claims 1-3, 12-14, and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. U.S. 2004/0100979 of Mandin et al. (hereinafter "Mandin") in view of U.S Publication No. U.S. 2002/0114277 of Kyusojin (hereinafter "Kyusojin"). Applicants would like to request reconsideration of this rejection in view of the remarks that follows.

Claim 1, as amended, recites:

1. A method, comprising:
calculating, by a device that shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system;
determining by the device, whether based, at least in part on particular data, an upstream channel data transfer rate can be improved over a

current data transfer rate of the first upstream channel from the device to the remote system, **wherein the particular data comprise the device's transmit queue capacity data, the upstream channel bandwidth data transmitted from the remote system, or both;** and
improving by the device, if the upstream channel data transfer rate can be improved, the upstream channel data transfer rate based, at least in part, on the particular data. (emphasis added)

Applicants respectfully submit that claim 1 requires “**calculating, by a device that shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system**” and “**wherein the particular data comprise the device's transmit queue capacity data, the upstream channel bandwidth data transmitted from the remote system, or both**”. Mandin and Kyusojin fail to disclose at least these limitations.

Mandin describes a system that sends only the last acknowledgement in the queue to a transmitter to indicate receipt of all of the data packets. There is no mention of “upstream channel bandwidth data transmitted from a remote system” in Mandin, explicitly or inherently. The Office Action also admits that Mandin does not explicitly teach the particular data comprise the device's transmit queue capacity data, upstream channel bandwidth data transmitted from the remote system, or both (Office Action, page 3, no. 4). In short, Mandin fails to disclose “calculating, by a device that shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system” and “wherein the particular data comprise the device's transmit queue capacity data, the upstream channel bandwidth data transmitted from the remote system, or both” as required in claim 1.

Kyusojin describes scheduling transmission requests from multiple flows created internally to avoid simultaneous transmission requests of two or more flows from occurring (Kyusojin , Paragraph 0002). There is no mention of “calculating, by a device that shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system” in Kyusojin. Therefore, Kyusojin fails to disclose at least the limitation as required in claim 1.

Applicants submit that Mandin and Kyusojin fail to disclose all limitations as claim 1 requires. Applicants respectfully request that this rejection be withdrawn. Claims 2 and 3, which depend on claim 1, are believed to be patentable for at least the reasons discussed in support of their base claim. Applicants respectfully request that the rejections of these claims be withdrawn as well.

In the Office Action, U.S. Patent No. 6236678 B1 of Horton et al. (hereinafter “Horton”), although not used in the rejection of claim 1, is cited in rejections against claims that require an upstream channel descriptor (UCD) message and an upstream bandwidth allocation map (MAP) message. Applicants would like to point out that Horton discloses a headend or a cable modem termination system (CMTS) that stores profiles related to bandwidth request from a cable modem (Horton, col. 2, lines 8-14, lines 61-62). A CMTS is not a cable modem that shares one or more upstream channels with other devices (claim 1 requires “a device that shares one or more upstream channels with other devices”). A CMTS also does not receive upstream channel bandwidth data transmitted from a remote system. Therefore, Horton also fails to disclose “calculating, by a device that shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system”

Regarding claims 12, 23, and 26, the claims include at least substantially the same limitations: **“calculating, by a device that shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system”** and **“wherein the particular data comprise the device’s transmit queue capacity data, the upstream channel bandwidth data transmitted from the remote system, or both”**. Applicants submit that Mandin and Kyusojin fail to disclose the limitations. The detailed remarks with respect to independent claim 1 are incorporated herein by reference. Therefore, applicants believe that the claims are allowable and respectfully request the rejections for these claims to be withdrawn. Claims 13, 14, 24, 25, and 27 depend directly or indirectly on claim 12, 23, and 26 and are believed to be patentable for at least the reasons discussed in support of that base claims. Applicants respectfully request that these rejections be withdrawn as well.

Claims 5-7 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mandin in view of Kyusojin and further in view of U.S. Publication No. 2003/0058795 A1 of Lansing et al. (hereinafter “Lansing”).

Without conceding the appropriateness of the combination, Applicants respectfully submit that Mandin, Kyusojin, and Lansing fail to disclose **“calculating, by a device that shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system”** and **“wherein the particular data comprise the device’s transmit queue capacity data, the upstream channel bandwidth data transmitted from the remote system, or both”** as required in claims 5-7 (claims 5-7 indirectly depend from claim 1 and claim 2).

Mandin and Kyusojin fail to disclose teaching in independent claim 1 as explained in the foregoing section. The detailed remarks with respect to independent claim 1 are incorporated herein by reference. Lansing fails to cure the deficiency.

Additionally, the Office Action alleges that Lansing discloses the transmit queue capacity data. Applicants respectfully disagree. Lansing discloses an SDRAM in a CMTS storing priority queues, and some registers (Lansing, 0026-0027, Figure 1). The local SDRAM is a fixed shared memory space (Lansing 0043). A CMTS drops lower priority packets if the SDRAM is getting full (Lansing, 0033 and 0039). Lansing does not disclose “the device’s transmit queue capacity data” and “wherein the device comprises a cable modem” as recited in claims 1-2. Lansing discloses a priority queue in a CMTS but not in the cable modem. Lansing drops packet in order to free up space in the fixed shared memory space, which is not “increasing the capacity of the transmit queue” as recited in claim 6 or “initiating a service flow” as required in claim 7. For the foregoing reasons, Applicants respectfully submit that claims 5-7 are believed to be patentable. Applicants respectfully request that the rejections for the claims be withdrawn.

Claims 16-18 that depend from claims 12 and 13 were rejected by the same reason as stated in the Office Action. For at least the same remarks with respect to claims 5-7, Applicants submit that claim 16-18 are allowable and Applicants respectfully request that the rejections for the claims be withdrawn.

Claims 9-11 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mandin in view of Kyusojin and further in view of U.S. Patent No. 6236678 B1 of Horton et al. (hereinafter “Horton”).

Without conceding the appropriateness of the combination, Applicants respectfully submit that Mandin, Kyusojin, and Horton fail to disclose **“calculating, by a device that**

shares one or more upstream channels with other devices, an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data transmitted from a remote system” and “wherein the particular data comprise the device’s transmit queue capacity data, the upstream channel bandwidth data transmitted from the remote system, or both” as required in claims 9-11 (claims 9-11 indirectly depend from claim 1).

Mandin and Kyusojin fail to disclose teaching in independent claim 1 as explained in the foregoing section. The detailed remarks with respect to independent claim 1 are incorporated herein by reference. Horton describes an exemplary cable modem system where a downstream processor receives, among other things, UCD and MCP from a CMTS (Horton, col. 5, line 50-54, and Figure 3). Horton, as explained above, also fails to cure the deficiency. Moreover, there is no mention of calculating an available bandwidth of a first upstream channel based at least on upstream channel bandwidth data in Horton. Therefore, Mandin, Kyusojin, and Horton, even if combined, fail to disclose all limitation as required in claim 9.

Most importantly, with respect to claims 10-11, the Office action has not provided analysis as to how the cited references disclose each of the claim limitation. For example, claim 10, as amended, further claims “calculating an available bandwidth of each upstream channel based, at least in part, on the UCD message and the MAP message” and “determining whether a different upstream channel has more bandwidth than the first upstream channel.” Claim 11 further includes “switching to the different upstream channel, if the different upstream channel has more available bandwidth than the first upstream channel.” Applicants refer to the references as cited in the Office Action and could not find the teaching of such limitations in the cited references. As such, the Office Action has not satisfied its burden to provide how the cited reference discloses each and every claim limitation of the claim.

Therefore, the Office Action fails to provide an explicit analysis supporting a rejection under U.S.C 103 as required by (M.P.E.P §2142) when establishing a prima facie case.

In short, Mandin, Kyusojin, and Horton, even if combined, fail to disclose the limitations as required in claims 9-11. For at least the foregoing reasons, Applicants respectfully submit that claims 9-11 are allowable. Applicants respectfully request that the rejections for the claims be withdrawn.

Claims 20-22 depending from amended claim 12 were rejected by the same reason as stated in the Office Action. For at least the same remarks with respect to claims 9-11, Applicants submit that claim 20-22 are allowable and Applicants respectfully request that the rejections for the claims be withdrawn.

New Claims

Applicants have presented three new dependent claims including claim 30 (depending from claim 3) and claims 31-32 (depending from claim 9). In view of the foregoing reasons, independent claims 3 and 9 are allowable and therefore the dependent claims 30-32 are also allowable over the cited references.

Moreover, claim 30 depending from claim 3 requires “monitoring a first number of receipt failure indicators transmitted from the CMTS; comparing the first number of receipt failure indicators to a second number; and indicating the transmit queue is full if the first number is larger than the second number.”

Claim 31 depending from claim 9 requires “receiving the UCD message and the MAP message from the CMTS; and calculating an available bandwidth associated with each at least two upstream channels respectively.”

Claim 32 depending from claim 9 requires “calculating empty time-slots of each upstream channel of the one or more upstream channels; and calculating an available bandwidth of each upstream channel based at least in part on the numbers of empty time-slots.”

The cited references fail to teach the limitations as set forth in the claims above. Therefore, at least for the foregoing reasons, Applicants submit that claims 30-32 are allowable. Applicants respectfully request the allowance for claims 30-32. Applicants respectfully request each element in claim language be considered during analysis and examination of the claims to expedite the prosecution.

CONCLUSION

In view of the foregoing, Applicants respectfully submit the present application is now in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call the undersigned attorney at (408) 720-8300.


Please charge Deposit Account No. 02-2666 for any shortage of fees in connection with this response.

Respectfully submitted,

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Date:

2/1/07



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